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APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
09/766,564	01/19/2001	Brian C. Lowry	121489-110

CONFIRMATION NO. 1099

FORMALITIES LETTER

OC000000006008904

Attn: James M. Singer
PEPPER HAMILTON LLP
50th Floor
500 Grant Street
Pittsburgh, PA 15219

Date Mailed: 04/26/2001

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

05/10/2001 TGEDAMU1 00000073 09766564 **FILED UNDER 37 CFR 1.53(b)**

01 FC:201 355.00 OP
02 FC:205 65.00 OP

Filing Date Granted

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
  Applicant must submit $ **355** *to complete the basic filing fee and/or file a small entity statement claiming such status (37 CFR 1.27).*
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(e) of $65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.
- **The balance due by applicant is $ 420.**

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- The Claim(s) commencing on a separate sheet (37 CFR 1.75(h)).
- Substitute drawings in compliance with 37 CFR 1.84 because:
  - drawing sheets do not have the appropriate margin(s) (see 37 CFR 1.84(g)). Each sheet must include a top margin of at least 2.5 cm. (1 inch), a left side margin of at least 2.5 cm. (1 inch), a right side margin of at least 1.5 cm. (5/8 inch), and a bottom margin of at least 1.0 cm. (3/8 inch);

A copy of this notice MUST be returned with the reply.

Customer Service Center
Initial Patent Examination Division (703) 308-1202
PART 2 - COPY TO BE RETURNED WITH RESPONSE

Docket No.: 121489-110 PATENT

Sept #3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : **ATTENTION APPLICATION BRANCH**

Brian C. LOWRY et al.

Serial No. 09/766,564

Filed: January 19, 2001

For: SYSTEM AND METHOD OF PROVIDING COMMUNICATION BETWEEN A VENDOR AND CLIENT USING AN INTERACTIVE VIDEO DISPLAY

RESPONSE TO NOTICE TO FILE
MISSING PARTS OF NONPROVISIONAL APPLICATION

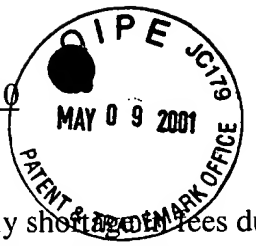
Assistant Commissioner for Patents
United States Patent and Trademark Office
Washington D.C. 20231

Sir:

In response to the Notice of Missing Parts of Application dated April 26, 2001, submitted herewith are the following items for filing in the above-referenced application:

- Substitute Drawings in compliance with 37 C.F.R. §1.84
- Completion of basic filing fee and surcharge in the total amount of $420.00.
- The notice also states that claims commencing on a separate sheet are required. Applicant provided such claims in a Preliminary Amendment filed April 19, 2001. A copy of the Preliminary Amendment is enclosed.

Docket No.: 121489-110



PATENT

Please charge any shortage of fees due in connection with the filing of these papers, including extension of time fees, to Deposit Account no. 50-0436, and please credit any excess fees to such deposit account.

Respectfully submitted,

PEPPER HAMILTON LLP

James M. Singer
Registration No. 45,111

Pepper Hamilton LLP
500 Grant Street, 50th Floor
Pittsburgh, PA 15219
412-454-5000
Date: May 7, 2001

Receipt

Docket No.: 121489-110

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :
Brian C. LOWRY et al. :
Serial No. 09/766,564 :
Filed: January 19, 2001 :
For: SYSTEM AND METHOD OF PROVIDING COMMUNICATION BETWEEN A VENDOR AND CLIENT USING AN INTERACTIVE VIDEO DISPLAY

REQUEST FOR CORRECTED OFFICIAL FILING RECEIPT

Assistant Commissioner for Patents
Office of Initial Patent Examination
Customer Service Center
Washington, D.C. 20231

Sir:

Applicant respectfully requests correction of the Official Filing Receipt received in the above-captioned application in view of the following errors, as marked in red on the attached copy of the Official Filing Receipt:

In the "Domestic Priority Data as claimed by applicant" section of the Official Filing Receipt, delete the asterisk and the phrase "Data inconsistent with PTO records."

A marked-up copy of the filing receipt relating to the present application is enclosed. To support applicant's belief that the "Domestic Priority Data as claimed by applicant" section is correct, a copy of the original filing receipt for each application to which priority is claimed is attached.

Respectfully submitted,
PEPPER HAMILTON LLP

James M. Singer
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Pepper Hamilton LLP
500 Grant Street, 50th Floor
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Date: May 7, 2001

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APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/766,564	01/19/2001	2152	0.00	121489-110	9	1	1

CONFIRMATION NO. 1099

FILING RECEIPT

OC000000006008903

Attn: James M. Singer
PEPPER HAMILTON LLP
50th Floor
500 Grant Street
Pittsburgh, PA 15219

Date Mailed: 04/26/2001

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

Brian C. Lowry, Emlenton, PA;
Jerald F. Lowry, Pittsburgh, PA;
Joseph Marnell, Sewickley, PA;
Evan Wimer, Pittsburgh, PA;

Domestic Priority data as claimed by applicant

THIS APPLICATION IS A CIP OF 09/570,999 05/15/2000 *
(*) Data inconsistent with PTO records.

Foreign Applications

If Required, Foreign Filing License Granted 04/25/2001

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

System and method of providing communication between a vendor and client using an interactive video display

Preliminary Class

709

Data entry by : AHMED, HEWAN **Team :** OIPE **Date:** 04/26/2001

FILING RECEIPT

OC000000005282320

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: ASSISTANT SECRETARY AND
COMMISSIONER OF PATENT AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/570,999	05/15/2000	2768	345	_	2	13	1

Susan E Nagel Esq
Nagel & Goldstein
1100 Liberty Avenue Suite 3
Pittsburgh, PA 15222

Date Mailed: 07/31/2000

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the PTO processes the reply to the Notice, the PTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

Brian C. Lowry, Pittsburgh, PA ;
Jerald F. Lowry, Pittsburgh, PA ;
Joseph E. Marnell, Pittsburgh, PA ;
Evan A. Wimer, Pittsburgh, PA ;

Continuing Data as Claimed by Applicant

Foreign Applications

If Required, Foreign Filing License Granted 07/29/2000

**** SMALL ENTITY ****

Title

Apparatus and method for direct interaction between video display devices and hand-held or body-mounted computing or communications devices

Preliminary Class

705

Data entry by : BALL, ROSALIND **Team :** OIPE **Date:** 07/31/2000

FILE COPY

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WASHINGTON, D.C. 20231
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Bib Data Sheet

CONFIRMATION NO. 1099

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/766,564	01/19/2001 RULE	709	2152	121489-110

APPLICANTS

Brian C. Lowry, Emlenton, PA;
Jerald F. Lowry, Pittsburgh, PA;
Joseph Marnell, Sewickley, PA;
Evan Wimer, Pittsburgh, PA;

**** CONTINUING DATA ***************************

THIS APPLICATION IS A CIP OF 09/570,999 05/15/2000

**** FOREIGN APPLICATIONS *********************

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
** 04/25/2001

		STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
Foreign Priority claimed	☐ yes ☒ no	PA	9	14	2
35 USC 119 (a-d) conditions met	☐ yes ☒ no ☐ Met after Allowance				
Verified and Acknowledged	Examiner's Signature Initials				

ADDRESS

Attn: James M. Singer
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500 Grant Street
Pittsburgh ,PA 15219

TITLE

System and method of providing communication between a vendor and client using an interactive video display

FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:
420	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

09/570,999

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

UTILITY PATENT APPLICATION

Inventors:	Brian C. Lowry
	Jerald F. Lowry
	Joseph E. Marnell
	Evan A. Wimer
Address:	2839 Liberty Avenue
	Pittsburgh, PA 15222-4705

Title of Invention:	Apparatus and Method for Direct Interaction between Video Display Devices and Hand-held or Body-mounted Computing or Communications Devices

---

Title of Invention

Apparatus and Method for Direct Interaction between Video Display Devices and Hand-held or Body-mounted Computing or Communications Devices

Inventors

Brian C. Lowry	200-52-6597
Jerald F. Lowry	199-30-5530
Joseph E. Marnell	173-44-0452
Evan A. Wimer	206-62-9544

Assignee

Transvision, Inc.

Patents Referenced

5,761,648

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

UTILITY PATENT APPLICATION

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	Jerald F. Lowry
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Title of Invention: Apparatus and Method for Direct Interaction between Video Display Devices and Hand-held or Body-mounted Computing or Communications Devices

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5,557,721

5,909,673

5,844,221

5,938,727

5,424,524

5,249,044

5,884,277

Abstract

This invention comprises an apparatus and software and method of using such apparatus and software which enables direct interaction between a video display and a viewer using a hand-held computing or communications device such as a WAP (Wireless Application Protocol)- enabled cellular telephone or PDA (9) (Personal Digital Assistant, such as a PalmPilot®) or other hand held device, or a wrist-mounted or head-mounted computing or communications device. Two-way data transmission and

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Title of Invention: Apparatus and Method for Direct Interaction between Video Display Devices and Hand-held or Body-mounted Computing or Communications Devices

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exchange is enabled, allowing downloading of electronic data files (electronic certificates or coupons, for example) from a public network (the internet, for example) or private network (intranet) and the control computer for the video display, directly to the hand-held or body-mounted device, and allowing transmission of electronic data files (electronic mail, for example) from the hand-held device to the video display, and hence to the internet.

Background of the Invention

Field of the Invention

This invention comprises an apparatus and software and method of using such apparatus and software which enables direct interaction between a video display and a viewer using a hand-held computing or communications device such as a WAP (Wireless Application Protocol)- enabled cellular telephone or PDA (9) (Personal Digital Assistant, such as a PalmPilot®) or other hand-held or a wrist-mounted or head-mounted computing or communications device. Two-way data transmission and exchange is enabled,

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allowing downloading of electronic data files (electronic certificates or coupons, for example) from a public network (the internet, for example) or private network (intranet) and the control computer for the video display; directly to the hand-held or body-mounted device, and allowing transmission of electronic data files (electronic mail, for example) from the hand-held or body-mounted device to the video display, and hence to the internet.

Prior Art

Patent 5,761,648 discloses an invention with which a consumer, from his or her personal computing device, can download electronic coupons to be later redeemed at, for example, a retail outlet. The concept of synchronously advertising and negotiating coupon transfers is not addressed.

Patent 5,557,721 discloses a "reverse vending machine" system for displaying ads and printing coupons remotely. This system uses "pull" technology, i. e., the end user prints out a hardcopy coupon at the apparatus by requesting it from the end machine. No mention is made of "push" technology, downloading

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coupons or other information, or interaction with personal computing devices.

Patent 5,909,673 discloses an invention for distributing remote hardcopies of coupons, gift certificates, etc. Remote advertising and displays are not discussed.

In summary, prior art addresses the downloading of electronic coupons to personal computers or other devices with video monitors, the storage of such coupons in electronic databases (in computers) and the subsequent printing of such coupons on a printer connected to the personal computer. Prior art does not address the concept of direct interactions between video display devices and hand-held or body-mounted communication and/or computing devices such as PDA's or cellular telephones, with the interaction directed by the material being presented on the video display. Nor does prior art address the concept of downloading of electronic data files (such as coupons or bar codes, for example) directly from a video display device to hand-held or body-mounted communication and/or computing devices such as a PDA, for storage in the PDA and direct presentation at a later time to a seller or service provider, without any need to actually print the coupon. Prior art does not address the concept of direct internet (or private

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network) access based on the interaction between hand-held or body-mounted computing devices (such as PDA's) and/or hand-held or body-mounted communication devices (such as cellular telephones) and public access video display systems. Nor does prior art address the direct interaction of advertising material with purchasers, wherein immediate feedback is provided to advertisers by purchasers through hand-held or body-mounted computing and/or communications devices, enabling the advertiser to concurrently assess the efficacy of a marketing program or strategy, and thereby, if desired, modify the marketing approach to meet his sales objectives.

Summary of Invention

This invention comprises an apparatus and software and method of using such apparatus and software which enables direct interaction between a video display and a viewer using a hand-held computing or communications device such as a WAP (Wireless Application Protocol)- enabled cellular telephone or PDA (9) (Personal Digital Assistant, such as a PalmPilot®) or other hand held device, or a wrist-mounted or hand-mounted computing or communications device. Two-way data transmission and exchange is

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enabled, allowing downloading of electronic data files (electronic certificates or coupons, for example) from a public network (the internet, for example) or private network (intranet) and the control computer for the video display, directly to the hand-held or body-mounted device, and allowing transmission of electronic data files (electronic mail, for example) from the hand-held device to the video display, and hence to the internet.

Description of Figures

Figure 1 is an artistic rendering showing people using hand held computing or communications devices (9) to interact with a video display system (1).

Figure 2 is a block diagram showing one embodiment of the present invention.

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Description of Invention

The preferred embodiment of this system includes a video display device (1) which is controlled by a computer (2) which has, among other connections, a connection to a network (3) such as the internet, or to a private network (intranet), as illustrated in Figure 2. Alternatively, this embodiment may be a distributed network of such video display devices (1), each controlled by a computer (2) which is connected to a public or private network (3). In this embodiment each video display device (1), which may be a large-area video display (1), a HDTV, a conventional small video display (1) (TV), a mid- or large-screen front or rear projection video display, a video wall, or any other type of video display, is equipped with one or more infrared transceivers (4), mounted at one or more locations, in such a manner that they are able to transmit infrared data to, and receive infrared data from, viewers located in front of the video displays (1), or in front of, but somewhat to the side of the video displays (1). Each transceiver (4) is comprised of an emitter (5) for transmission of data using an infrared electromagnetic carrier, and an infrared receiver (6) for reception of similar data. Such emitter-receiver units are in common use, for example, for remote control of electronic equipment. The transceivers (4) may be mounted in one of several different ways:

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Title of Invention: Apparatus and Method for Direct Interaction between Video Display Devices and Hand-held or Body-mounted Computing or Communications Devices

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1) On the front surface of the video display (1);
2) Just behind the front surface of the video display (1), each transceiver (4) communicating with the area in front of the display (1) through a small aperture or an aperture equipped with an optical system;
3) At any remote location within the video display device (1), and communicating with the area in front of the display (1) via one or a plurality of fiber optic strands. Such fiber optic strands must be capable of data transmission using an infrared carrier.

As illustrated in Figure 2, data transmission from the infrared emitter or emitters (5) is controlled by the computer (2) which controls the video display device (1), using a serial interface card (7), or other type of interface controller which is well-known to those practiced in this art. Likewise, data reception from the infrared receiver or receivers (6) is decoded by an interface controller (8) at the same computer (2).

Alternatively, rather than connecting the infrared transceivers (4) to a serial interface card (7), they can be connected directly to a network hub that encapsulates serial infrared signals, transforming them into a

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digital communications protocol, such as TCP/IP. Given sufficient bandwidth, this approach eliminates the need for a local control computer (2), since the video can be streamed directly to the display device (1), and information can be uploaded from the display device (1) to a remote computer system.

In one use of this system, advertising material is downloaded to the control computers (2) via a public or private network (the internet for example) (3) and subsequently delivered to each video display device (1), such material including date-stamped and/or time-stamped coupons or vouchers, redeemable for discounted prices on merchandise, travel, lodging, or other goods and services useful to viewers of the display (1). Simultaneously, each control computer (2) activates the infrared emitters (5) or array of emitters (5) attached to or embedded within each video display (1), such emitters (5) then transmitting data packages which include electronic files containing the same coupons or certificates which are being advertised on the video display system (1). A viewer of the video display (1), viewing advertising material of personal interest, directs his/her hand-held or body-mounted computing or communications device (9) (PDA, for example) toward the video display (1) and activates software in the device (9) which enables the receiver portion of the infrared transceiver (4) in the hand-held device (9) and downloads the data

package transmitted from the video display infrared emitter (5).

The software in the hand-held or body-mounted device (9) subsequently decodes the data transmission, and displays on its screen the coupon, voucher, or certificate which was downloaded. At the discretion of the viewer, the coupon or voucher may then be saved in RAM aboard the PDA or other hand-held or body-mounted device (9) for future use. Alternatively, rather than a coupon, voucher, or certificate, the downloaded data file may be a barcode or a confirmation number. Subsequently, the user of the PDA or other hand held or body-mounted device (9) presents the saved coupon, voucher, certificate, confirmation number, or barcode at the advertiser's place of business (clothing store, hotel, airline, car rental agency, etc.) for redemption.

For each such coupon, voucher, certificate, barcode, or confirmation number which is thus downloaded from the PDA or other hand-held or body-mounted device (9) user, a data transmission is initiated from the hand-held or body-mounted device back to the video display computer (2) via the infrared receivers (6), confirming receipt of the original data transmission and subsequent download of the coupon or other device. The control computer (2) which issued the original transmission may then transmit notification (via the internet, for

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Title of Invention: Apparatus and Method for Direct Interaction between Video Display Devices and Hand-held or Body-mounted Computing or Communications Devices

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example) to the advertiser to enable the latter to count or otherwise "track" the number, geographical location, and/or temporal distribution of such items downloaded by viewers equipped with PDA's or other hand-held or body-mounted devices (9). The advertiser may, in turn, based on this direct and immediate interactive feedback from customers, modify or otherwise redirect the content of the advertising. Such redirection of the advertising material may be made to occur in a timely manner, even immediately if desired, using previously prepared material which can be downloaded over the internet (or an intranet) to the network of computers and video display devices (1). For example, the advertising material may be modified concurrently to reflect changes in the weather using prepared material directed at raingear, or winter sports, or beach use.

In a second use of this invention the infrared transceiver (4) mechanism built into each video display system (1), when not in use for downloading advertising material, coupons, vouchers, etc. to PDA's or other hand-held or body-mounted devices (9) may be used by viewers with PDA's or other hand-held or body-mounted devices (9) to access the World Wide Web (that is, the public internet), through which they may access any internet

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site including their personal "web"sites, retrieve personal email, etc. The owner of the video display device (1) may charge the viewer a fee for this service, via credit card information entered "on-line," or, at his discretion, may provide the service "free" to viewers of the display (1).

Although present PDA's or other hand held devices (9) use infrared technology (IrDA - Infrared Data Association Standard) to communicate with other devices or appliances, alternative technologies may be used to effect communication between video display devices (1) and viewers having PDA's or other hand-held or body-mounted devices (9). These include visible radiation (light, as opposed to infrared), ultrasound, and radio frequency and high frequency electromagnetic radiation, as is commonly used both in "cordless" telephone systems, which have limited range, and in "wireless" communications. If the video display system (1) is an outdoor billboard type of display, for example, which may be viewed from a relatively large distance (up to hundreds of meters), state-of-the-art infrared transceivers as used in present PDA's or other hand-held or body-mounted devices (9) may not have adequate range for communication between the PDA's or other hand-held or body-mounted devices (9) and the display (1). In this case an alternative technology such as ultrasound or limited range/limited power high frequency electromagnetic radiation may be used to effect the communication

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link. The video display (1) may be equipped with arrays of various transceivers (4), for enabling communication with a variety of PDA or other hand-held or body-mounted device (9) transceivers.

PDA's are not the only hand held devices (9) equipped with infrared transceivers for interactive communication, but other hand-held devices, most notably the cellular or "wireless" telephone, are now so equipped. Moreover, with the emergence of wireless interconnectivity standards such as Wireless Application Protocol (WAP) and Bluetooth (see www.bluetooth.com), hand-held communication devices (9) can now interact with each other and with network "appliances" (printers, for example) over digital and analog broadband communication devices. And, as mentioned above, the video display devices (1) may be equipped with high frequency radio transceivers (4) to enable interactive communication over relatively long line-of-sight distances. Thus, this invention is not limited to infrared communication devices, or to the interaction of video display systems (1) with PDA's or other hand-held or body-mounted devices (9).

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

UTILITY PATENT APPLICATION

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Title of Invention: Apparatus and Method for Direct Interaction between Video Display Devices and Hand-held or Body-mounted Computing or Communications Devices

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Rather, any technology which permits two-way (interactive) communication between a video display system (1) and a hand-held or body-mounted computing and/or communications device (9) may be used to enable the interaction between the display (1) (that is, the material presented on the display (1)) and viewers of the display (1).

This interactive system may also be used to download general information, useful to viewers, from a public database located in the computer (2) which serves and controls the video display (1), to the PDA or other hand-held (9), or other body-mounted device capable of communicating with the transceivers (4) in the video display system. For example, for video display systems located in shopping malls such public information may include store locations, maps, shopping hours, mall services, etc. In an airport such public information may include flight schedules, gate information, weather updates, rental car information, etc.

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UTILITY PATENT APPLICATION

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This invention, which enables interactive communication between a video display system (1) and a viewer of the display having a PDA or other hand-held or body-mounted device (9) capable of communicating with the transceivers (4) in the video display system (1), is capable of a wide variety of interactions. These include, but are not limited to, the three examples given below:

1. Airline Check-In: Upon arriving at an airport, an outbound traveler could interact with an airport video display system (1) via this type of interface to effectively "check in" with the airline, thus notifying the airline of his/her arrival and intention to board the airplane, and eliminating the need for a direct, personal interaction with airline personnel (the check-in line).

   Upon authentication of the traveler's identification (via password, for example), a boarding pass or other proof of reservation could be downloaded to the traveler's PDA or other hand-held or body-mounted device (9), and saved in RAM. This boarding pass could be in the form of a barcode, which could be scanned at the boarding point, a confirmation number which could be

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presented to the boarding attendant, a voucher which could be displayed to the boarding attendant, etc. Alternatively, printers having an infrared interface could be available to travelers (at the entrance to each concourse, for example). The PDA or other hand-held or body-mounted device user could then download the saved boarding pass to a nearby printer and obtain a printout for presentation to the gate attendant.

2. Rental Car Check-In: In a similar manner, upon arriving at an airport or other travel center having an interactive video display system (1), a traveler could interact via this interface to effectively "check in" with the rental car agency, thus confirming his/her arrival and intention to honor the reservation, and minimizing the need for direct, personal interaction with rental agency personnel. Upon authentication of the traveler's identification (via password, for example), a car rental voucher, certificate or other proof of reservation could be downloaded to the traveler's PDA or other hand-held or body-mounted device and saved in RAM. This certificate could also be in the form of a barcode or a confirmation number. Upon presentation of this certificate, barcode, or

confirmation number at the car pickup location, the traveler would be given the car keys and pre-completed paperwork relevant to the rental. The process could be simplified even further, for example, by having the keys and paperwork in a repository on a shuttle vehicle which conveys travelers from the airport to a remote car pickup location. Upon presentation of an authenticated confirmation number, barcode, or voucher (stored in his/her PDA or other hand-held or body-mounted device (9)) to the shuttle operator or an attendant, the traveler would be given the keys and paperwork, and delivered directly to the rented vehicle. Alternatively, printers having an infrared interface could be available to travelers (near the car rental shuttle departure area, for example). The PDA or other hand -held or body-mounted device

(9) user could then download the saved rental car voucher to a nearby printer and obtain a printout of all required paperwork for presentation to the shuttle operator.

3. The advertiser employing such an interactive system may be provided (via electronic transmission)

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with the registration number of the PDA or other hand-held or body-mounted device (9) which is interacting with the video display system (1), or the telephone number in the case of a cellular telephone. This information would only be provided to the advertiser with the permission of the user or viewer, using the software running on the PDA, other hand-held or body-mounted device (9), or cellular telephone which enables the interactive transaction. This information having been transferred electronically from the viewer to the advertiser, the device registration number and/or telephone number would then automatically be entered into an electronic database containing user profiles, from which computer software would search for matches between the advertiser's products or services and the user's needs or desires. Based on these matches the advertiser could subsequently select and electronically transmit promotional material tailored to specific user needs or desires. There are several options for the final promotional material selection process.

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1. All software-based, no human invention. In this option the computer software would perform the following functions:
    1. Search for matches between the advertiser's products and the user's needs or desires (based on pre-supplied user profiles);
    2. Search previously-prepared advertising or promotional material files for material relevant to the matches found in step a;
    3. Prepare a list of all relevant files, ordered or prioritized according to relevancy to the matches found in step a;
    4. Electronically transmit such files to the control computer (2) for the video display system, starting with the file having the highest relevancy.
2. Partially software-based with human intervention. In this option the computer software would perform the following functions:
    1. Search for matches between the advertiser's products and the user's needs or desires

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(based on pre-supplied user profiles);

2. Search previously-prepared advertising or promotional material files for material relevant to the matches found in step a;

3. Display on a monitor the results for steps a and b so that a human operator may make the final selection and prioritization of files to be transmitted to the control computer (2) for the video display system(1).

3. Although the selection of promotional material may be based on a single user profile, it is more likely that it would be based on multiple user profiles. Computer software would search multiple user profiles for the product matches common to several users, and order or prioritize the selection of promotional material according to both relevancy to user profile to product matches and commonality to multiple users.

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Claims

1. We claim a video display device (1) which enables direct interaction, i. e., data exchange between a video display device (1) and a viewer of said video display (1) having a PDA or other hand-held or body-mounted computing or communications device (9), comprised of a video display device (1) equipped with one or a plurality of infrared transceivers (4) with control software for two-way data transmission and exchange, said transceiver for comprising data emitter (5) and receiver (6); a PDA (Personal Digital Assistant) or other type of hand-held or body-mounted computing or communications device (9) which contains an infrared transceiver (4) for two-way data transmission and exchange; a computer (2) with software which controls said video display device (1), such computer (2) serving at least two functions: a) providing video content to said video display device (1), either via a public network (e. g., the internet) or a private network connection (3), or from mass storage within said computer (2), or a combination of these; b) providing control of the data emitters (5) and receivers (6) incorporated into said video display device (1).

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2. We claim a group or groups of transceivers (4) in a video display device (1) in Claim 1, each group of such transceivers (4) employing a different modality for two-way data transmission and exchange, such modalities including, but not limited to, infrared radiation, ultrasonic radiation, visible radiation, radio-frequency electromagnetic radiation, and microwave electromagnetic radiation.

3. We claim a hand-held or body-mounted computing or communications device (9) as in Claim 1 used by the viewer and equipped with one or a plurality of groups of transceivers (4) for two-way data transmission and exchange, each group of such transceivers (4) employing a different modality for data transmission, such modalities including, but not limited to, infrared radiation, ultrasonic radiation, visible radiation, radio-frequency electromagnetic radiation, and microwave electromagnetic radiation.

4. We claim software in hand-held or body-mounted computing or communications devices (9) as

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in Claim 1, which enables said device (9) to receive data transmissions from a video display device (1) and to send data transmissions back to said video display device (1).

5. We claim software in a control computer (2) as in Claim 1, which enables a video display device (1) to send data transmissions to a PDA or other hand-held or body-mounted computing or communications devices (9), and receive data transmissions from such devices (9).

6. We claim a method of using the video display device of Claim 1 in which an interaction between the video display device (1) and one or a plurality of viewers as in Claim 1 enables wireless data transmission from the control computer (2) for the video device (1) to viewers having hand-held or body-mounted computing or communications devices (9), enables independent wireless data transmission from each viewer to the control computer (2) for the video display device (1), and enables two-way data transmission, either by wire or wireless, from the control computer (2) to any remote location via public networks (the internet, for example) or private networks (3).

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7. We claim a control computer (2) as in Claim 1 in which an interaction between the control computer (2) for the video display device (1) and the viewer enables the two-way wireless transmission of data to a hand-held (PDA) or body-mounted computing device or communications device held by the viewer, such two-way data transmission enabling the viewer to access a public database stored within the control computer (2), access a private network (intranet), access a personal internet site, retrieve and send electronic mail, and/or access any public internet site.

8. We claim in the method of using the video display device (1) as in Claim 6, interaction which may allow coupons, certificates, vouchers, or other such promotional devices to be dispersed synchronously with the time such services or advertisements are promoted on the display system (1).

9. We claim in the method of using the video display device (1) as in Claim 6, the interaction which incorporates a real time feedback mechanism whereby the advertiser employing such an interactive system is notified (electronically) when and where (i.e., the geographical location of each such video display device (1)) each interaction takes place, thereby monitoring the efficacy of the advertisement

or promotion, and allowing the advertiser, if desired, to immediately modify or redirect the advertising material to increase its efficacy.

10. We claim in the method of using the video display device (1) as in Claim 6, the interaction which allows an advertiser employing such an interactive system to be provided via electronic data transmission, but only with the consent of the user, with the registration number of the PDA or other hand-held or body-mounted computing device (9) which is interacting with the video display system (1), or the telephone number in the case of a cellular telephone.

11. We claim in the method of using the video display device (1) as in Claim 10, the interaction in ch he advertiser employing such an interactive system, having received via electronic data transmission the registration number of the PDA or other hand-held or body-mounted computing device (9) which is interacting with the video display system (1), or the telephone number in the case of a cellular

telephone (9), then enters such device registration number or cellular telephone number, electronically and automatically, into an electronic database containing pre-supplied user profiles, from which computer software searches for matches between the advertiser's products or services and the user's needs or desires, and based on these matches the advertiser subsequently selects and electronically transmits to the video display system (1) promotional material tailored to specific user needs or desires.

12. We claim in the method of using the video display device (1) as in Claim 11, the interaction in which the entire transaction, from the point at which the user enables electronic transmission of the registration number of his or her PDA or other hand-held or body-mounted computing device (9) which is interacting with a video display system (1), or the telephone number in the case of a cellular telephone, is directed and controlled by computer software, without direct human intervention; this computer software performing the following functions: a) receiving the device registration number or cellular telephone number and entering the number into an electronic data base containing such numbers and, associated with each number, a pre-supplied user profile; b) identifying the user,

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acquiring a user profile, and extracting user data relevant to the goods and/or services offered by the advertiser; c) searching an electronic data base containing data and information on the advertiser's line of goods and/or services for matches between the advertiser's products and the user's needs or desires (based on data extracted from the user profile); d) assembling an output file of such matches between the advertiser's products and the user's needs or desires; e) searching a data base of previously-prepared advertising or promotional material files for material relevant to the matches found in step c; f) preparing a list of all relevant files, ordered or prioritized according to relevancy to the matches found in step c; and g) electronically transmitting such files to the control computer (2) for the video display system (1), starting with the file having the highest relevancy.

13. We claim in the method of using the video display device (1) as in Claim 6, in which the computer software simultaneously serves multiple users of the video display system (1) by performing the following functions: a) receiving user device registration numbers or cellular telephone numbers and entering the numbers into an electronic data base containing such numbers and, associated with each

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number, a pre-supplied user profile; b) identifying multiple users, acquiring multiple user profiles, and extracting multiple user data relevant to the goods and/or services offered by the advertiser; c) searching an electronic data base containing data and information on the advertiser's line of goods and/or services for product matches common to several users, and ordering or prioritizing the selection of promotional material according to both relevancy to user profile to product matches and commonality to multiple users (based on data extracted from multiple user profiles); d) assembling an output file of such matches between the advertiser's products and the users' needs or desires: e) searching a data base of previously-prepared advertising or promotional material files for material relevant to the matches found in step c; f) preparing a list of all relevant files, ordered or prioritized according to relevancy to the matches found in step c; and g) electronically transmitting such files to the control computer (2) for the video display system (1), starting with the file having the highest relevancy.

Fig1

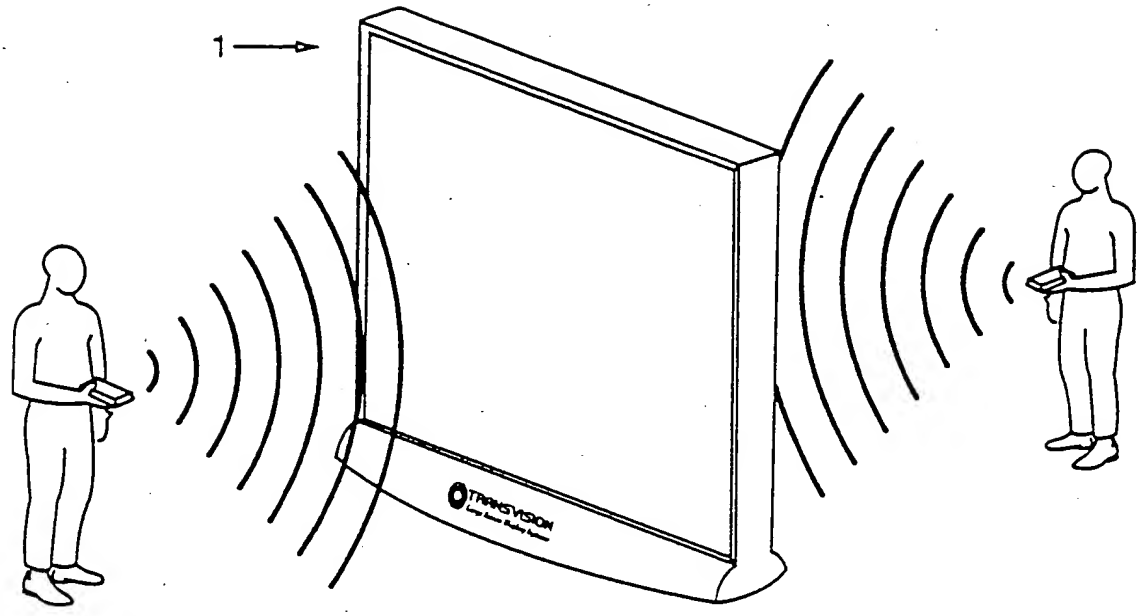
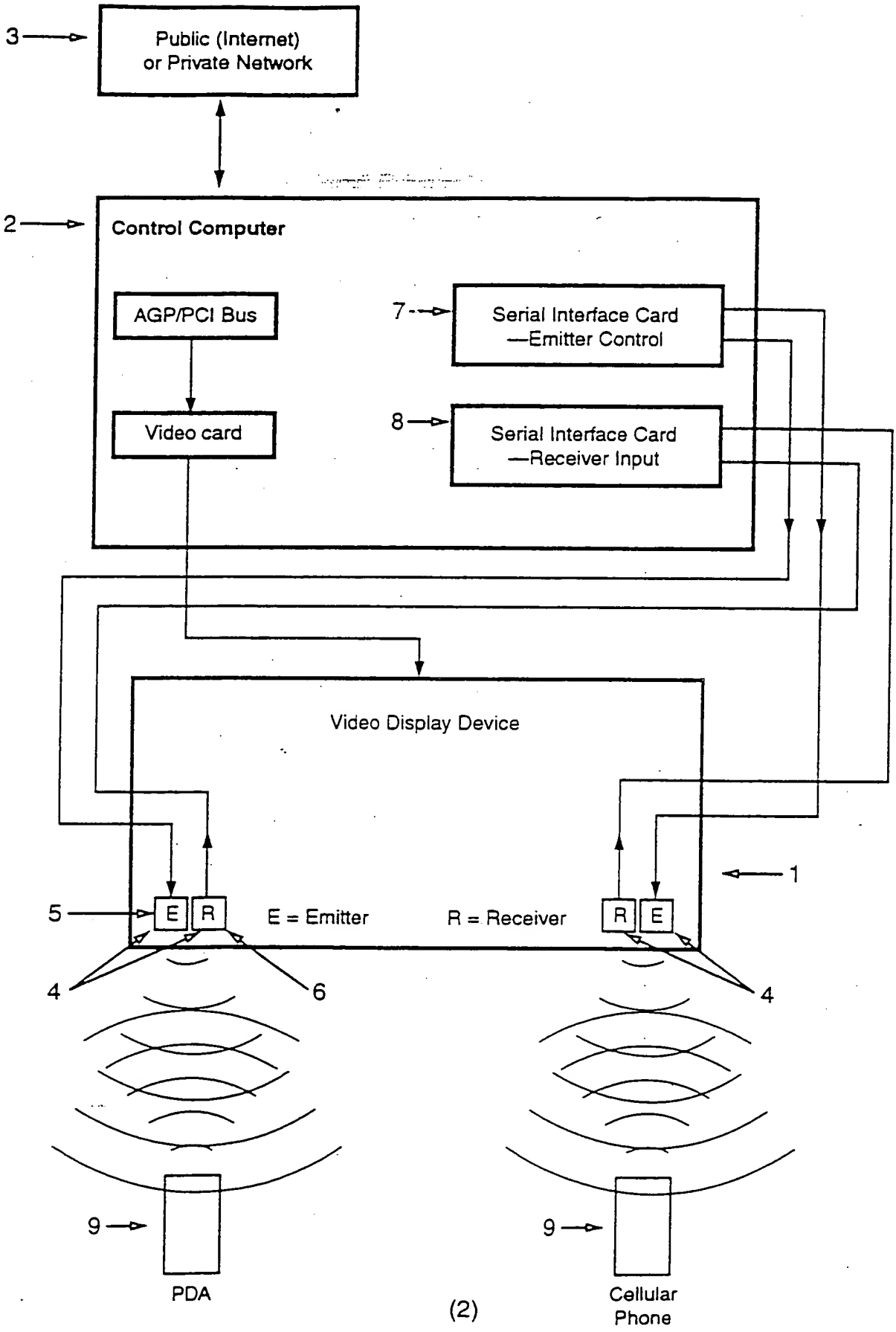


Fig 2


3
Public (Internet)
or Private Network
2
Control Computer
AGP/PCI Bus
Video card
7
Serial Interface Card
—Emitter Control
8
Serial Interface Card
—Receiver Input
Video Display Device
1
5
E
R
E = Emitter
R = Receiver
R
E
4
6
4
9
PDA
9
Cellular
Phone

(2)